have been the conſequence. This is a plain indication of its narcotick quality, and ſtupefactive powers.

N°. XXX.

Deſcription of a Machine for meaſuring a ſhip's way: in a letter from FRANCIS HOPKINSON, ESQ. *to Mr.* JOHN VAUGHAN.

Read Dec. 17, 1790.

IN the 2d. volume of our Philoſophical Tranſactions, I publiſhed a deſcription of an inſtrument for meaſuring a ſhip's way through the ſea. I have not heard of any objection to the principles on which ſuch a machine may be conſtructed, but it may, probably, have been thought too complex for general uſe.

As this object, ſhould it be accompliſhed, would be of great importance, I have made another attempt to the ſame purpoſe; in which, if there ſhould be no other objection, the want of ſimplicity cannot reaſonably be complained of.

Cloſe along the ſhip's bow is a copper pipe, about two inches in diameter, extending downward as low as the keel, and upward above the water line when the veſſel is loaded. This pipe muſt be ſo bent at the bottom as that it's orifice may be directly oppoſed to the line of the ſhip's progreſs, and project but a little way beyond the keel or cut-water. The upper part of this pipe muſt alſo be ſo bent as that it may enter into the fore-caſtle, through a hole made for the purpoſe, above the water line. The pipe ſhould be ſecured in its place by ſtaples or clamps.

On the top of this copper pipe ſhould be a cover to be ſcrewed on, and through the cover a hole muſt be made for

for the admiſſion of a glaſs tube, of the ſize of a common barometer tube, and cemented there. The ſea water will riſe in the copper pipe to the general level of the ſea, but will not appear in the glaſs tube becauſe the copper pipe enters the ſhip above the water line, as before obſerved. But if a quantity of oil be poured down the glaſs tube, the ſurface of the oil will riſe and become viſible in the tube, on account of the ſpecific difference between oil and ſea water.

This glaſs tube muſt alſo be furniſhed with a ſcale for meaſuring the different heights of the oil, the cypher, or (o) of the ſcale being on a line with the ſurface of the oil when the ſhip is at reſt, or makes no way. But when ſhe is in a progreſſive motion, the water contained in the copper tube, together with the column of oil in the glaſs tube, will be forced upward, in proportion to the velocity with which the veſſel proceeds; which will be aſcertained by the different altitudes of the ſurface of oil, viſible on the graduated ſcale.

The glaſs tube ſhould be made to run ſome depth into the copper pipe, and alſo be of a ſufficient height above, to allow room for the vibrations of the column of oil, when the ſhip is agitated by the waves.

When the ſhip has got every thing on board and whilſt ſhe is under no way, the ſurface of the oil muſt be regulated by bringing it even with the (o) or cypher of the ſcale; and this examination, ſhould be frequently made on account of the conſumption of proviſions and other waſte, that may alter the ſhip's draught of water.

In taking down the reckoning from the ſcale, the moſt favourable moment ſhould be watched for a fair obſervation, viz. when the ſhip is proceeding with an average velocity, not when ſhe is in the act of plunging into, or

riſing

riſing above the level of the waves, as this would ſenſibly affect the truth of the ſcale. But a little experience would ſoon make the uſe of the inſtrument familiar.

N°. XXXI.

An Inquiry into the Queſtion, whether the APIS MELLIFICA, *or* TRUE HONEY-BEE, *is a native of America.*

Read Feb. 1, 1793. SO many animals and vegetables have been introduced into the countries of America, ſince the great diſcovery of Columbus, that naturaliſts are frequently at a loſs to determine, which ſpecies are natives, and which are foreigners. This is particularly the caſe with reſpect to plants. Many of thoſe ſpecies which are now diſtributed, in profuſion, through extenſive tracts of country; which are not merely confined to the gardens, the meadows, the fields, and waſte places, but have even inſinuated themſelves into the thickeſt foreſts and the moſt lofty mountains, growing luxuriantly in their new ſituations, are, undoubtedly, European and other colonies, which have been introduced either by accident or by the hands of man. At ſome future day, I ſhall communicate the reſult of my inquiries on this ſubject to the Philoſophical Society. Meanwhile, I ſhall mention a few inſtances, which more readily occur to me. The Plantago *major*, or *Greater-Plantain*, the Verbaſcum *Thapſus*, or *Great White-Mullein*, the Chenopodium *album*, or *Common Wild-Orache*, the Antirrhinum *Linaria*, or *Yellow Toad-Flax*, the Hypericum *perforatum*, or *Common St. John's wort*, the Leontodon *Taraxacum*, or